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SUMMARY

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SOVIET MILITARY AIR POLICY

AGENCIES INVOLVED IN MILITARY AIR POLICY

There are numerous agencies in the Soviet Union which participate in the formulation and implementation of military air policy, principal of which are the Council of Ministers, the Ministry of Armed Forces, the Armed Forces General Staff, the Main Administrations of the Soviet Air Force and the Soviet Navy, and the Civil Air Fleet. The State Planning Commission and the Academy of Sciences of the USSR likewise exercise such functions, as also do a considerable number of the 58 ministries represented on the Council of Ministries. Since information as to the interrelationships among agencies involved in military air policy is almost completely lacking, what follows is primarily speculation.

Major policy decisions probably are made at the very top level, which would go beyond the Council of Ministers into the Politburo itself. Once decision had been reached in the Politburo, acceptance in the Council of Ministers would be a foregone conclusion. Each ministry would make note of the requirements which affect its particular operations, so that such matters as production of aircraft, electronics equipment, and any other materials needed by the air program could be included in the plans which each ministry must submit to the State Planning Commission (GOSPLAN). The GOSPLAN Commission is responsible for the preparation of quarterly, yearly and five-year plans and for the supervision of the fulfillment of the plans after their approval by the Council of Ministers. This commission is believed to have a major role in implementing military aviation policy.

The Academy of Sciences, in general, governs science and research, and undoutedly is a major factor in the implementation of air policy with respect to the research which must precede the development of new aircraft and related equipment.

Within the Ministry of Armed Forces, coordination of air policy with that of the military program as a whole is probably handled by the Minister in council with his deputies, who include the Chiefs of the Air

Force, Ground Forces, Naval Forces, and Rear Services, in addition to the Chief of the Armed Forces General Staff. This latter officer functions as first deputy minister. In most respects, it is believed that the air arm remains subordinate to the ground force high command.

RELATIVE IMPORTANCE OF AIR IN NATIONAL DEFENSE

The Soviet high command appears to be putting principal reliance for defense on the mass strength of ground armies, which means that the air force will continue to have a major tactical role. During World War II the Soviet Air Force was organized and employed as an instrument for direct and immediate support of the ground forces. In this role, the air force was much larger and more important than the Soviet navy, but still far less important in Russian military thinking than were the ground armies.

MILITARY AIR IN FOREIGN RELATIONS

The Soviet Air Force has not been used in an "international" armed force in the true sense, although as a measure of control in satellite countries such as Poland, the occupying Soviet air units have operated with, but have always controlled, the satellite units. The Soviet Union does not coordinate its staff planning with other nations, nor did it do so with the Allies even during the war.

It is evident that the Soviets are exploiting to the maximum the aviation material acquired during the war and as a result of their occupation of Western Germany. Skilled German personnel have been recruited by the USSR to further its postwar program. The Soviet Union is in a position to take advantage of Swiss, Swedish and Czech skills in the production of precision instruments. This is not to imply that the Soviet Union is dependent upon outside sources for the materials needed to support its air force. It will turn to these sources as necessary, however, while it improves its own aeronautical industry.

FISCAL

With regard to preparation of the military air budget, the State Planning Commission proposes the annual allocation of funds to the Armed Forces as a part of the overall allocation of funds and resources under the Five-Year Plan. A detailed annual budget is prepared by the Minister of Finance under direction of the Council of Ministers for approval by the Supreme Soviet.

No information is available to indicate the extent to which expenditures for the military establishment are borne by other ministries, but the fact that this is done is inherent in the adjustment of the entire economy of the country to the requirements of national defense.

RESEARCH AND DEVELOPMENT

Research and development in the air force is carried out by the Chief Engineer of the Soviet Air Force who directs these research institutes. One of these develops new aircraft types and improvements on existing types, another is devoted to armament, and the third to aircraft materials. Research in addition to that conducted within the air force

is controlled primarily by the Academy of Sciences, mentioned above. The Academy, which includes numerous installations, is concerned principally with problems of theoretical research and basic science. In most cases developmental work is turned over to the research institutes operated by the various ministries. Emphasis on the furtherance of jet, turboprop and rocket engine design continues unabated, as does research and production in the field of electronics.

The Soviet aircraft industry is fully capable of building and maintaining a powerful air force, given appropriate priorities. The industry is supported by a strong economy which suffered substantially during the war, but which is fast recovering and will soon begin to expand beyond its prewar dimensions. In the past, development of the industry was hampered by inadequate supplies of aluminum. Soviet aluminum production rose, however, from 60,000 metric tons in 1940 to 86,000 metric tons in 1945. The goal of the Five-Year Plan is 172,000 metric tons in 1950.

ADEQUACY OF GOVERNMENTAL STRUCTURE IN MILITARY AIR POLICY MATTERS

In commenting on the overall efficiency of the governmental structure in the establishment and implementation of military air policy, the absence of firm data requires that conclusions be based on conjecture.

Efficiency is a relative term, and in comparison with the best of American standards there are many aspects in which the Soviet governmental structure could be considered inefficient. What is involved is the type of inefficiency which is inherent in any highly centralized government which discourages initiative and necessitates that many minor as well as major decisions be made at the very top levels of government.

A highly centralized system of exercising governmental power gains in effectiveness, however, since it can channelize the amount of effort necessary to gain any desired objective. The decisions as to military air policy can be made in the Politburo, and the handful of men responsible for such decisions are in a position to see that the entire Soviet economy is organized to execute the policy decided upon, should such prove necessary.

While there may be considerable argument concerning the efficiency of the Soviet system, there is less dispute concerning the effectiveness of the Soviet Union in implementing its military air policy. The success with which the Soviet Air Force recovered from the brink of annihilation during the early part of World War II is evidence of this. In the midst of combat, the Soviet Air Force reorganized, re-equipped and developed from a fighting force which war markedly inferior to the German Air Force to one which by the close of the war was not only markedly superior in numbers but was also fast approaching equal quality in both aircraft and crews.

Another indication of the effectiveness of the Soviet structure in the implementation of policy is the apparent success of a widespread program to develop and produce operational jet aircraft.

Soviet leaders demonstrated their ability to devise and adapt air policy to changing circumstances during World War II.

Since the war a reorganization of the armed services has given the air force a more important position than it ever had previously, even though evidence to date does not indicate that this has meant complete independence of the air arm from ground force control.

Since 1945, the major operating problems facing Soviet air have changed materially. In view of the present world situation and demonstrated wartime weaknesses of the Soviet Air Force, Soviet military air policy should be oriented around the tasks of creating an interceptor force capable of coping with long range strategic attack, and the development of a long range striking arm of its own. Solution of both of these problems currently is being given high priority, it is believed, but the success achieved probably cannot be demonstrated by anything short of actual combat.

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USSR

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MILITARY AVIATION - USSR

1. In general, the agencies of primary military interest are:

Council of Ministers
Ministry of Armed Forces
Armed Forces General Staff
Main Administration of Soviet Navy
Air Arms of the Soviet Naval Fleets
Civil Air Fleet
Main Administration of Soviet Air Force
Military Council
Tactical Air Armies
Military District Air Forces
18th Air Army
Air Force of the Airborne Forces
Fighter Air Defense Force

The State Planning Commission and the Academy of Sciences of the USSR exercise functions which relate to military air policy, as do also a considerable number of the 58 ministries represented on the Council of Ministries. To one degree or another, these could include the ministries of:

Armaments
Aviation Industry
Chemical Industry
Communications
Communications Equipment Industry
Construction Materials
Light Industry
Machine and Instrument Construction
Machine Tools Construction
Material Reserves
Oil Industry, Eastern Regions
Transport
Construction of Military and Naval Enterprises
Electrical (Equipment) Industry
Heavy Machine Building
Internal Affairs
Labor Reserves
Oil Industry, Western and Southern Regions
Road and Construction Building
Rubber
State Security
Transport Machine Building

2. Information as to the inter-relationships among agencies involved in the formation and implementation of military air policy is almost completely lacking, and what follows is primarily speculation.

Major policy decisions probably are decided at the very top level, which would go beyond the Council of Ministers into the Politburo itself. Once decision had been reached in the Politburo, acceptance in the Council of Ministers would be a foregone conclusion.

Each ministry would make note of the requirements which affected its particular operations, so that such matters as production of aircraft,

electronics equipment, construction materials, trucks, and all other materials needed by the air program could be included in the plans which each ministry must submit to the State Planning Commission.

Within the Ministry of Armed Forces, coordination of air policy with that of the military program as a whole probably is handled by the Minister in council with his deputies, who include the chiefs of the Air Force, Ground Forces, Naval Forces, and Rear Services, plus the chief of the Armed Forces General Staff. This latter officer functions as first deputy minister.

The scope of activities of the Armed Forces General Staff as regards military air policy is not know, but this staff, headed by its Chief of Staff, is responsible for overall planning and coordination within the Ministry of Armed Forces.

The Main Operations Administration of the Armed Forces General Staff is charged with the final preparation of strategic plans before their submission to the Chief of the General Staff and the Minister of Armed Forces, and thus is directly concerned with air policy.

Other agencies of the Armed Forces General Staff, most of which may have some relation to air policy are:

Main Intelligence Administration
Signal Communications Administration
Organization and Mobilization Administration
Fortified Areas Administration
Topographic Administration
Historical Administration
Eighth Administration (Coding and Decoding)
Affairs Administration

Within the Soviet Air Force the policy-making body is the Military Council, which includes the Commander in Chief of the Soviet Air Force, his Chief of Staff, the Chief of Rear Services, the Chief Engineer, and the Chief of the Political Administration.

The commander of the Naval Air Forces is subordinate to the Commander in Chief of the Soviet Navy, who is one of the deputy ministers of the Ministry of Armed Forces. The generals commanding the air arms of the individual fleets are subordinate to the commander of the respective fleets to which they are assigned, and also to the Commander in Chief of the Naval Air Force, but information is lacking as to how these relationships work out in practice.

The Academy of Sciences, in general, governs science and research, and undoubtedly is a major factor in the implementation of air policy with respect to the research which must precede the development of new aircraft and related equipment.

Economic mainsprings of the Soviet economy is the State Planning Commission (GOSPLAN).

The Soviet Constitution of 1935 provides: "The economic life of the USSR is determined and directed by a State Plan of national economy with the aim of increasing the public wealth, of steadily raising the material and cultural standard of the working people, and of strengthening the independence of the USSR and its capacity for defense."

The GOSPLAN commission has 11 members elected from among the leading industrial workers, scientists, and specialists. Its task is to prepare quarterly, yearly and five-year plans and present them for approval to the Council of Ministers; to supervise fulfillment of the plans and to work out solutions to the practical and methodological problems involved in economic planning.

The principal task of the commission is the coordination of the different schemes and branches of the Soviet economy. While this commission has a major role in implementing military aviation policy, its complicated organization of more than 40 departments and bureaus apparently handles the problems involved on a piecemeal basis. There is a "Group of Aviotransport" in the "Department of Aviotransport and Motor Transport," but no other agency has "aviation" in its title. Presumably some of the military air policy matters are considered in the "Mobilization Department."

3. a. (1) Before and during World War II the Soviet Air Force was designed, organized, and employed as an instrument for direct and immediate support of the ground forces. In this role, the air force was much larger and more important than the Soviet navy, but still far less important in Russian military thinking than were the ground armies.

The Soviet high command still appears to be putting principal reliance for defense on the mass strength of ground armies, which means the air force will continue to have a major tactical role.

Within the air force itself, it is believed first priority is being given to the development of an interceptor fighter force based on jet aircraft, and second priority to creation of an effective long range bomber force.

(2) The Soviet Air Force has not been used in an "international" armed force in the true sense, although as a measure of control in satellite countries such as Poland, the occupying Soviet air units have operated with, but always controlling the satellite units.

The stumbling block in the formation of the air portion of the UN armed forces has been Soviet insistence on equal participation by each Security Council member, an important consideration in view of China's weakness and the current status of the French Air Force.

The Soviet Union does not coordinate its staff planning with other nations, nor did it do so with the Allies even during the war.

The Soviet Union recently planned a major reorganization of Rumania's armed forces without bothering to advise the Rumanian general staff as to what was in prospect.

The Soviet Air Force benefited to a major degree from foreign technical and material resources during World War II, not only from the thousands of aircraft furnished under the Lend-Lease program, but also from motor vehicles, explosives, electronics equipment, vast quantities of aluminum and petroleum products, including blending agents for aviation fuel.

Soviet development of improved postwar conventional type aircraft undoubtedly has been aided by the items of American equipment available for their use, including the two flyable B-29's which were interned in 1944.

The USSR obtained much that can be put to advantageous use as the result of its occupation of eastern Germany. Captured items included new developmental and prototype models with which the Germans were experimenting, as well as research centers and aviation plants. Large numbers of skilled German aviation scientists, engineers, and technicians have been recruited by the USSR to further its postwar program.

The Soviet Union is in a position to take advantage of Swiss, Swedish, and Czech skills in the production of precision instruments required by the air force.

Considerable effort is being expended to develop sources of aluminum and enlarge the petroleum industry.

It is not to be implied from the above that the Soviet Union is dependent upon outside sources for the materials needed to support its air force. The Soviet Union will turn to outside sources as necessary, however, while it improves its own aeronautical industry.

The Soviet Union does not release any of its air designs to foreign nations, but it has a policy of equipping satellite countries with Russian aircraft, usually older models. The Yugoslav Air Force, however, has some of the newest of Soviet aircraft, which may indicate that the USSR is willing to provide effective support for an air force which is considered "thoroughly reliable."

There is no indication to date that Soviet aircraft are being manufactured in any of the satellite countries, except a few YAK's in Yugoslavia.

b. (1) On 25 February 1946, the People's Commissariat of Defense and the People's Commissariat of the Navy were combined in the People's Commissariat of the Armed Forces—which later was designated the Ministry of Armed Forces. As part of the reorganization it appears that the air, ground, navy, and rear services were given co-equal administrative status. Prior to this, the Soviet Army Air Force had been subordinate to the ground forces, and each of the four major fleets of the Soviet Navy had its own fleet air arm.

During the balance of 1946 it became apparent that the Civil Air Fleet had been divorced from military control, directly responsible to the Ministry of Armed Forces, or, possibly, to the Council of Ministers itself.

There is still no positive evidence that the Soviet Air Force actually has achieved co-equal status with the ground or naval forces. The Air Force may have been granted some measures of autonomy, such as in the field of research and development, but it is believed that in most respects the air arm remains subordinate to the ground force high command.

The Naval Air Force continues to be an integral part of each of the four Soviet fleets--Pacific, Arctic, Baltic, and Black Sea.

(2) Since the air force, ground forces, and navy are all part of the Ministry of Armed Forces, it can be assumed that a measure of top level coordination of air policy matters is achieved either among the deputy ministers or the Armed Forces General Staff.

Within the Soviet Air Force the Military Council is the advisory and policy-making body, but it has no naval air force representation.

The Soviet Navy has no aircraft carriers, and, for the most part, the Naval Air Force uses the same type equipment and has the same type organization as does the Soviet Air Force. Most of the Soviet naval air effort in World War II was expended in joint operation with the Soviet Air Force in tactical engagements with the Germany Army and German Air Force. It is believed, however, that an expanded role is in prospect for the Naval Air Force.

(3) As of 1 September 1947, the Soviet Air Forces included an estimated 450,000 personnel and 14,000 aircraft in operational units, of which 1,000 were non-combat types.

A total of 5,100 aircraft are stationed in Europe, outside the USSR; 1,150 in Korea and Manchuria; and 7,750 within the USSR, of which an estimated 1,150 are in the Far East.

The air strength is estimated to include 6,000 fighter types, 4,000 ground attack aircraft, and 3,000 bombers. These are divided by major command as follows:

Tactical Air Armies and Military District Air Forces	-	9,000 aircraft
18th Air Army (Long Range Force)	-	1,750 aircraft
Fighter Defense Force (PVO)	-	1,600 aircraft
Naval Air Force	-	1,650 aircraft

(4) No specific information is available to indicate that the USSR has a system of air training similar to that of the US Air National Guard and Air Reserves. Since a compulsory tour of service in the Armed Forces by all physically qualified men is a continuing Soviet military policy, the need for such a

comprehensive reserve training program is partially removed. Nothing is known of refresher courses given to demobilized air force personnel for maintaining their military proficiency. In all probability there is some form of refresher training.

Indications are that a considerable number of former military pilots are currently working for the Ossoaviakhim (Society for the Promotion of Aviation and Chemistry), an important subdivision of which is the Aero Club organization.

Details of the training given Civil Air Fleet personnel are not known, but the quality of training of flying personnel is thought to be that best in the Soviet Union.

c. (1) No specific answer to this question is possible because it is impossible to calculate the national income of the USSR in comparative monetary terms; because budget allocations to the armed services are not truly indicative of the amount of money which is spent on the military; and because no data are available to indicate what proportion of the armed services budget allocation is spent for military air.

In general, the 1947 Soviet budget, in billions of rubles, is as follows:

Planned state revenue	391.5	
Planned state expenditures	371.4	
National Economy		131.8
Social-cultural		107.1
Ministry of Armed Forces		67.0
Maintaining governmental organs		12.8
Payment on government loans		6.9
Scientific research institutions		6.5
Unaccounted for		39.3

When the 39.3 billion rubles unaccounted for in the expenditures budget is added to the 20.1 billion rubles surplus of planned revenues over planned expenditures, and the 18.6 billion rubles surplus of 1946, the USSR has a total of 68 billion rubles—more than the published budget for the Ministry of Armed Forces—for uses concerning which no information is available.

The Russian ruble has an "official" exchange of 5.3 to the US dollar, but the diplomatic rate is 12 rubles to the dollar. Both of these figures are purely arbitrary, as the ruble is not used in foreign exchange and thus its international value is undetermined. On the basis of prices which Russians must pay for imported goods sold in Soviet stores, it is estimated that the consumer's ruble is worth about two cents, or 50 to the dollar. Purchasing power of rubles expended by the government is considered to be much greater than the purchasing power of those spent by individuals, since the government is able to set cost prices on the materials it buys.

Basically, of course, the entire matter is a bookkeeping proposition, since the government pays Ivan his salary whether he is a metal worker in an aircraft plant or a sergeant in the air forces.

Decisions with respect to expenditures can be made on the basis of national policy without regard to monetary costs. The desired goals, plus availability of skilled workers and the necessary materials, are the important factors--not the bookkeeping "costs." Or, as the Soviets would put it, the public interest rather than cost or profit, is the guiding criterion.

(4) All funds for civilian research, educational institutions, and the aviation industry are provided by the government.

(5) The State Planning Commission, which coordinates the planned development of the economy of the Soviet Union, proposes the annual allocation of funds to the armed forces as a part of the overall allocation of funds and resources under the Five Year Plan. A detailed annual budget is prepared by the Minister of Finance under the direction of the Council of Ministers and is approved by the Supreme Soviet.

The funds as provided by the budget are made available by the Minister of Finance to the Minister of Armed Forces. Within the Ministry of Armed Forces, the Chief of the Main Finance Administration of the Armed Forces handles all fiscal matters.

No information is available to indicate the extent to which expenditures for the military establishment are borne by other ministries, but the fact that this is done is inherent in the adjustment of the entire economy of the USSR to the requirements of national defense.

Within the Soviet Air Force, the Main Administration of Rear Services (GUT) is charged with the administration of finance, as well as supply and construction. Within the GUT is a Finance Administration responsible for the payment of personnel and for the budget of supplies and materials used by the Soviet Air Force.

It may well be that the air force budget originally is worked out by the Finance Administration of GUT, then analyzed and approved by the Military Council of the Soviet Air Force, after which it is submitted to the Ministry of Armed Forces for approval and forwarding to the State Planning Commission.

d. (1) The Chief Engineer of the Soviet Air Force, one of five members of the Military Council of the Air Force, directs three research institutes through the Main Administration of Engineer Service (GUIAS). These are:

Scientific Research Institute of the Soviet Air Force, which conducts research for development of new aircraft types and for improvement of existing types.

Scientific Research Institute for Aircraft Armament.
Scientific Research Institute for Aircraft Materials.

The Chief Engineer also is responsible for an Inventions Administration, which inspects and studies inventions submitted to the Soviet Air Force, and maintains a construction bureau and experimental workshop for developmental work. Within the Administration of Repair Service is a Scientific Experimental Institute of Aircraft Repairs, which serves both the field repair and major repairs departments, and a Department for Research and Introduction of New Repair Methods.

No information is available to indicate whether the Soviet navy conducts any research and development in military aviation.

For the most part, the Naval Air Force has employed aircraft of the same models and type as those utilized by the Soviet Air Force. It may thus be that development of new types and other research has been left largely to the Soviet Air Force.

(2) In order to answer this question it is necessary to examine the general organization of research in the Soviet Union.

Because of the centralized nature of the government of the USSR, it is possible that fixing of priorities between research on different problems of military significance may be resolved at the very highest level, perhaps even in the Politburo.

For most purposes, however, the controlling agency is the Academy of Sciences of the USSR, which is responsible for drafting a five-year plan listing the most important scientific problems to be solved. For each problem there is listed its history, its present status, proof of its importance to the national economy, a list of sub-problems which must first be solved in order to further solution of the basic problem, and the names of the scientists charged with working out this problem.

The Academy of Sciences, which includes more than 40 scientific institutes, plus a large number of commissions, laboratories, societies, museums, and libraries, is concerned primarily with problems of theoretical research and basic science. It handles some of the problems in its own institutes, while others are assigned to researchers in the institutions of higher learning.

In some instances, the Academy of Sciences carries the results of its experimentation through the developmental stage, but in many cases the developmental work as well as the actual testing is turned over to the research institutes operated by the various ministries.

The Ministry of Aviation Industry, for instance, has several institutes for aviation research and development. It is believed that these institutes are responsible for the technological work necessary to develop practical application of the results of research conducted under direction of the Academy of Sciences.

Research institutes of the aircraft industry can be divided into five categories. In the first category come the principal scientific research institutes. These include, in addition to the institutes of the Soviet Air Force already mentioned, the following:

Central Aero-Hydro-Dynamic Institute (TsAGI), which deals with all questions of aircraft design (airframes and engines) especially from an aerodynamic point of view. It has an experimental factory attached to it and claims to have one of the world's largest wind tunnels.

Central Aircraft Engine Institute (TsIAM)

Soviet Union Aircraft Building Material Institute (VIAM), which studies materials for air frames and engines. It may be closely associated with, or perhaps the same agency, as the Scientific Research Institute for Aircraft Materials of the Soviet Air Force.

Scientific Research Institute of the Civil Air Fleet (NiiGVF). There are additional institutes dealing with such problems as instrument construction, labor utilization in factories, etc.

In the second category are the experimental design bureaus directed by the principal Soviet aircraft designers--Lt. Gen. Ilyushin, Lt. Gen. Yakovlev, Major General Lavochkin, and Major General Tupolev. Aero-engine design bureaus are directed by such engine designers as Major Gen. Mikulin, Major Gen. Shvetsov, and Major Gen. Klimov.

The research laboratories attached to the higher aviation training establishments, such as the Moscow Aviation Institute, compose the third category.

Every large aviation factory has an experimental laboratory. These laboratories vary in size and importance, but together they comprise the fourth category.

The fifth category includes other research institutes, principal function of which is to modify and perfect existing basic aircraft models. There have been ten modifications, for instance, of the YAK-9. These research institutes also design and turn out, in small experimental series, new aircraft types for series production when and as the industry can accept them.

A "Bistrop" Commission is reported to be the supreme Soviet organization in Germany on matters of scientific research, the evacuation of technicians and scientists and the further development of V-weapons. This commission is under charge of a major general and probably represents a coordinated effort. No information is available as to which Soviet ministry or research agency controls the "Bistrop" Commission.

(3) Considering the type of political and economic organization which exists in the Soviet Union, there is no purely private research and development.

(4) With the possible exception of fundamental research in institutions of higher learning, it is believed that centralized control in this field is complete. General priorities probably are laid down by the highest authority.

The Academy of Sciences determines priorities in basic and theoretical research. Priorities for development of new models and equipment probably are recommended by the Ministry of Armed Forces and issued as orders by higher authority to the various industrial ministries concerned.

e. (1) Firm data on this subject are lacking, but some evidence is provided by the recent appearances of jet aircraft in the Soviet Air Force. One jet fighter was seen in the August, 1946 Moscow Air Show, and 100 jet fighters of two types performed in the May Day parade of 1947. Considering that the one seen in August, 1946, was a prototype, the Soviet Union got into production rapidly, and began to equip its fighter regiments with jet aircraft in short order.

On the basis of World War II experience, once the first experimental aircraft had been produced, the time taken to prepare it for the State test, and therefore for series production, was usually fairly short. The average time for fighters was 3-6 months and for bombers 5-10 months. In the case of the YAK-3, for instance, there was an interval of one and a half months from the production of the first experimental aircraft to its State test, then an interval of three months until the production of the first series. With the IL-10, six or seven months elapsed between the production of the first experimental aircraft and that of the first series. In the case of the TU-2 and ER-4 aircraft, however, production of each of these twin-engine bombers was held up for many months because of engine difficulties.

A considerable number of Soviet air regiments currently are believed to be operating with obsolete or obsolescent aircraft, long after improved types are known to have been developed. This may be a matter of policy rather than necessity, however, since there is evidence to indicate the Soviet Union tends to build reserves of its more modern types, witholding them from operational use while older models are being used by tactical units. This policy was noted on occasion in the closing period of World War II.

(2) The Soviet aircraft industry is fully capable of building and maintaining a powerful air force. The industry is supported by a strong economy which suffered substantially during the war, but which is fast recovering and will soon begin to expand beyond

its prewar dimensions. The USSR possesses sufficient skilled man power, materials, and equipment to satisfy the requirements of the aircraft industry at a high rate of operation over an extended period, given appropriate priorities.

Estimated total aircraft production in the USSR between 1938 and 1946 is compared with US production below:

	USSR	US
1938	6,000	3,623
1939	9,000	5,856
1940	12,000	12,781
1941	14,796	26,134
1942	25,622	48,858
1943	37,079	85,946
1944	39,926	96,369
1945	34,200	47,713
1946	16,500	1,728*

*Military aircraft and commercial transport types (DC-3 and larger) only. Total US output in 1946 was 36,482, broken down as follows: Military, 1,643; commercial transport, 139; two-seater planes, 30,604; 3 and 4 place planes, 3,756; 5 to 10 place planes, 340.

During the war years, combat types represented about 85 per cent of total aircraft output in the USSR.

In the past, development of the Soviet aircraft industry was hampered by inadequate supplies of aluminum. Lend-lease aluminum was an important factor in Soviet wartime aircraft production. Soviet production of aluminum was 60,000 metric tons in 1940, 86,000 metric tons in 1945, and the goal of the Five-Year Plan is 172,000 metric tons in 1950.

Considering the planned expansion of aluminum capacity and the possibility of employing substitute materials, it is believed that, if a wartime production program were begun today, the Soviet Union could manufacture aircraft at the rate of 50,000 to 55,000 a year in 1950, assuming the same composition of output as existed at the close of World War II.

(3) Procurement is considered to be centralized to a marked degree.

Control and planning of all Soviet Air Force activities, including those relating to logistics, are vested in the Commander in Chief of the Soviet Air Force, who is chairman of the Military Council, composed of chiefs of the major administrations of the Soviet Air Force.

The Main Administration of Rear Services of Soviet Air Force headquarters probably obtains all standard supplies from the major command known as Rear Services, which has the same organizational position as the Army, Air Force, and Navy under the

Ministry of Armed Forces. The Air Force is believed to deal with the Main Administration of Intendance in Rear Services headquarters on matters of quartermaster supply.

Definite information is lacking, but it is possible that the Soviet Air Force deals directly with the various production ministries for procurement of purely air equipment, including aircraft and engines.

During the past war, the Soviet Air Force maintained two types of centralized rear area stores: Special Air Force Stores, which were stocked with aircraft engines, spare parts, ammunition, and other types of specialized equipment used solely by air force units; and General Stores, from which the air force was supplied with food, clothing, and other non-specialized supplies.

No information is available to indicate the extent to which Air Armies or Military District Air Forces may be authorized to obtain certain supplies on a local basis. Considering transportation difficulties, local supplies are obtained where possible, but it is considered that the administrative work connected with such procurement still may be quite centralized.

f. (1) The USSR is convinced of the highly important part played by training in the development and sustained operation of an efficient air force. The quality of air training has been quite low in comparison with US standards due to a certain amount of lag behind the Western Powers in development and utilization of the highly technical aspects of an air power. However, this situation is showing signs of steady improvement. Confirmed reports indicate that the Soviets are using German military and technical personnel as advisors and instructors in the use of captured German equipment.

The Soviet air training system at the close of the war conformed substantially to that of the other major powers. By far its outstanding quality is its flexibility. This quality will prove most valuable now that the Soviet Air Force, and thus its training program, must be designed for possible future war.

Compared with the Western Powers, flying training in the Soviet Air Force is weakest in the techniques of bad-weather flying, aerial gunnery, formation flying, and high level precision bombing. Soviet training is probably stronger in operations under poor field conditions, although this has, in the past at least, probably been due to necessity rather than design. It is significant that the Soviets have demonstrated the ability to accomplish much under highly adverse conditions.

Among service schools concerned with military aviation are two Academies of the General Staff, three branch air academies, three higher military schools (for advanced pilot training)

and seven officer candidate schools which cover pilot training, technical specialties and aerial reconnaissance.

(2) Para-military training, as exemplified by that conducted in the "Aero Clubs," seems to be as vigorous as it was before the war. Aero Clubs formed, prior to the war, the most important subdivision of the OSSOVIAKHIM (Socity for the Promotion of Aviation and Chemistry). Outwardly, this is an independent civil body, but it is actually para-military in nature. Practically all candidates for Aero Club membership come from the industrial working class and are members of the KOMSOMOL (Communist Youth Organization).

(3) "Izvestiya," 13 September 1947, announced the opening in Moscow of a new high level aviation academy with three departments: Aircraft, power plants, and instruments. The list of faculty members included Ilyushin, Klimov, Lavochkin, Nikoyan, Tupolev, Yakovlev, and Zhukovsky. Students qualified to take the training at this academy must be college graduates with seven years' experience in the aviation industry, including at least two years in executive positions. The faculty members are top-flight aircraft and engine designers of the USSR. The caliber of these men, plus the impressive entrance requirements, indicate that the Soviet Union is planning an intensive campaign to improve the civilian element of the aviation industry. This may indicate further intensified effort on the part of the Russians to improve both design and production methods in the Soviet Aviation industry.

g. (1) Some indication of the degree to which the USSR emphasizes security is given by two decrees promulgated in June, 1947, by the Supreme Soviet providing punishments for the disclosure by any Soviet state secrets--military, scientific, economic, or political.

The prescribed penalties, confinement in labor correction camps for varying periods, are more severe for responsible citizens than for ordinary Soviet citizens.

Among information classified by the decrees as "state secrets" are: Any facts or figures concerning the size, strength, or dispersal of armed forces or reserves; plans concerning exports or imports of certain goods; production of non-ferrous and rare metals and earths; "information concerning negotiations, relations, and agreements of the USSR with foreign states," and advances "in all spheres of science, technology, and national economy."

Disclosure of any of this information by officials in circumstances that "cannot be qualified as treason to the motherland or espionage is punishable by imprisonment in a labor concentration camp for a period of eight to 12 years," the decree said.

Betrayal of military secrets by service men, if not treason, is punishable by imprisonment of ten to 20 years, while ordinary citizens disclosing state secrets may be punished by labor camp terms of five to ten years. Disclosure of scientific date can lead to a term of ten to 15 years.

"State secrets" are defined so broadly that it would appear that these decrees—coupled with the activities of the secret police—provide a comprehensive program for protection of the security of military data and the results of research and development.

4. Since data on these subjects are almost completely lacking, any answer can be little more than conjecture.

Efficiency is a relative term, and in comparison with the best of American standards there are many aspects in which the Soviet governmental structure could be considered inefficient. What is involved is the type of inefficiency which is inherent in any highly centralized government which discourages initiative and necessitates that many minor as well as major decisions be made at the very top levels of government.

A highly centralized system of exercising governmental power gains in effectiveness, however, since it can channelize the amount of effort necessary to gain any desired objective.

The decisions as to military air policy can be made in the Politburo, and the handful of men responsible for such decisions are in a position to see that the entire Soviet economy is organized to execute the policy decided upon, should such prove necessary.

While there may be considerable argument concerning the efficiency of the Soviet system, there is less dispute concerning the effectiveness of the Soviet Union in implementing its military air policy. The success with which the Soviet Air Force recovered from the brink of annihilation during the early part of World War II is evidence of this. In the midst of combat, the Soviet Air Force reorganized, re-equipped and developed from a fighting force which was markedly inferior to the German Air Force to one which by the close of the war was not only markedly superior in numbers but was also fast approaching equal quality in both aircraft and crews.

Another indication of the effectiveness of the Soviet structure in the implementation of policy is the apparent success of a widespread program to develop and produce operational jet aircraft.

Soviet leaders demonstrated their ability to devise and adopt air policy to meet changing circumstances during World War II.

Since the war a reorganization of the armed services has given the air force a more important position than it ever had previously, even though evidence to date does not indicate this has meant complete independence of the air arm from the ground force control.

Since 1945, the major operating problems facing Soviet air have changed materially. In view of the present world situation and demonstrated wartime weaknesses of the Soviet Air Force, Soviet military air policy should be oriented around the tasks of creating an interceptor force capable of coping with long range strategic attack, and the development of a long range striking arm of its own. Solution of both of these

problems currently is being given high priority, it is believed, but the success achieved probably cannot be demonstrated by anything short of actual combat.

There is no basis for a discussion of "economical use of funds," both because of lack of detailed information on "expenditures," and because the Soviet economy is not based on "money" in the conventional sense.

Approved For Release 2000/08/23 : CIA-RDP67-00059A000500030006-7